

CLAIMS

What is claimed is:

1. A data collection unit for a fuel management system,
5 comprising:
a pulse transmitter that transmits pulse signals corresponding to a
flow of fuel;
a configurable filter that attenuates the pulse signals received from
the pulse transmitter;
10 a pulse accumulator that increments a counter for each input pulse
signal;
a micro-controller that reads the pulse accumulator and calculates a
volume of fuel based on the pulse signals; and
an RF module coupled to the micro-controller for producing RF
15 signals.
2. The data collection unit of Claim 1, wherein the
configurable filter is configured by a software module
- 20 3. The data collection unit of Claim 2, wherein the software
module is executed by the micro-controller.
4. The data collection unit of Claim 1, further comprising an
antenna coupled to the RF module.
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5. The data collection unit of Claim 1, wherein the pulse
transmitter produces signals proportional to a volume of fuel.
6. The data collection unit of Claim 1, wherein the unit enters
30 into a sleep mode to conserve power when the pulse transmitter does not
transmit signals.

7. The data collection unit of Claim 1, further comprising a power source that supplies input power to the micro-controller.

5 8. The data collection unit of Claim 7, wherein the power source comprises a battery.

9. The data collection unit of Claim 1, further comprising a voltage and current monitor.

10 10. The data collection unit of Claim 1, further comprising a discontinuous voltage regulator.

15 11. The data collection unit of Claim 1 wherein said micro-controller further comprises at least one of a serial interface connection, an expansion port, a non-volatile memory, and a low frequency oscillator.

12. A method for calculating a volume of pumped fuel, comprising:

receiving a request to monitor a volume of fuel being pumped;
receiving input pulse signals from a pulse transmitter;
5 filtering each input pulse signal to reduce noise;
tracking each input pulse signal;
determining a final input pulse value; and
calculating a fuel volume based on the input pulse signals.

10 13. The method of Claim 12, further comprising adjusting a configurable hardware filter.

14. The method of Claim 12, further comprising configuring an adjustable hardware filter with a software module.

15 15. The method of Claim 12, wherein tracking each pulse signal further comprises incrementing a pulse accumulator for each input pulse signal.

20 16. The method of Claim 12, further comprising modulating RF signals with the fuel volume.

17. The method of Claim 12, wherein calculating the fuel volume comprises:

25 multiplying an initial input pulse value and the final input pulse value by a meter factor, wherein said meter factor comprises a constant corresponding to an amount of fuel set equal to one pulse signal.

18. A data collection unit for a fuel management system, comprising :

a configurable hardware filter that attenuates signals;

5 a micro-controller that reads the pulse accumulator and calculates a volume of fuel based on signals from the filter;

an RF module coupled to the micro-controller for producing RF signals;

a housing for preventing explosions that encloses the filter, the micro-controller, the RF module; and

10 an antenna coupled to the housing and to the RF module for propagating the RF signals.

19. The data collection unit of Claim 18, further comprising an antenna coupler for connecting the antenna to the housing.

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20. The data collection unit of Claim 19, wherein the antenna coupler comprises a predetermined number of threads.